REMARK

Appreciation is hereby expressed to Examiner Lam and Supervisory Examiner Le for the interview so courteously and professionally conducted on January 7, 2004. In accordance with the discussions held therein, Claims 1-7 have been amended to more definitely set forth the invention and obviate the rejections. Support for these amendments can be found in the Specification on page 13, lines 13-22, and page 17, line 23, to page 18, line 13. The present amendment is deemed not to introduce new matter. Claims 1-7 are in the application.

Reconsideration is respectfully requested of the rejection of Claims 1-7 under 35 U.S.C. §102(e) as being anticipated by Flower, 5,830,175.

Flower describes that the controller may monitor the electrical voltage drop at the resistor 70 (see column 5, lines 8-10). In the Flower reference, "the electrical voltage drop" means the voltage developed across resistor 70 by the flow of current. In contrast, in the present invention, "the residual voltage" means the charge stored in the capacitance (see page 3, lines 17-18, of the present application) as a capacity component of an equivalent circuit of the skin impedance (see page 8, lines 7-8). In particular, a charge (voltage) is stored in the capacity of the skin by conducting the output of the claimed device, and the charge is retained in the capacity (of the skin) during the off-period of the output and causes a voltage. This voltage is known as residual voltage, and is measured by the instant device during the off-period (see page 9, line 1-5). The detection of "the residual voltage" is different from that of "the electrical voltage drop". There is no disclosure whatsoever of such detection of "the residual voltage" in the Flower reference.

Further, in the rejection, the Examiner mentions that the detection circuit for detecting the residual voltage includes a discharging resistor 70 coupled between output terminals. It is respectfully submitted that the resistor 70 is different in structure from the first circuit herein, and functions only to monitor the electrical voltage drop (see column 5, lines 9-10), not to detect the reactive current as called for in the claims herein. Moreover, in the rejection, the Examiner relies upon the Flower reference as disclosing a detection circuit for detecting a residual voltage. However, it is respectfully submitted that the resistor 70 disclosed in the Flower reference is not arranged between the outputs of the electrical assemblies and, therefore, it is believed that the Flower reference does not include a detection circuit for detecting a residual voltage as called for in the claims herein.

In any event, independent Claims 1, 4 and 7 have each been amended to more clearly patentably distinguish from the Flower reference and obviate the rejection. First, these claims now include a detection circuit for detecting a reactive current flowing through a capacity component of impedance of the transdermal or the transmucosal tissue. This added passage in Claims 1, 4 and 7 is based on the description in the Specification on page 8, lines 7-10, which states:

> "Rp, here, is a resistance component of
> an equivalent circuit of the skin impedance
> and Cp is a capacity component. Detection of
> the reactive current is to measure a current
> that flows through the impedance of the capacity

for AC current." (emphasis ours)

This description in the Specification of one preferred embodiment of the invention is believed to fully support this first newly added limitation in the claims.

Second, Claims 1, 4 and 7 have also been amended to now state that the detection circuit detects a residual voltage developed by the charge remaining in a capacity component of impedance of the transdermal or the transmucosal tissue.

Third, Claims 1, 4 and 7 have also been amended to now require that the detection circuit operates during an off-period of an output. Support for the second and third limitations added to these claims can be found in a description in the Specification of a preferred embodiment on page 9, lines 1-5, which states:

"when an intermittent current is used, a charge
(voltage) is stored in the capacity of the skin by
conducting the output, and the charge remains in the
capacity during the off-period of the output and causes
a voltage so that a residual voltage is measured". (emphasis ours)

In view of the foregoing, it is respectfully submitted that independent claims 1, 4 and 7 as amended clearly patentably distinguish from the Flower reference for the reasons discussed above. Dependent Claims 2, 3, 5 and 6 likewise patentably distinguish from the Flower reference for the same reasons. Consequently, the Flower reference fails to anticipate the claims as now amended herein. As such, Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of claim 1-7 under 35 U.S.C. §102(e) as being anticipated by McNichols, et al. (USP 5,047,007).

The cited McNichols, et al. reference describes the feedback circuit 122b as including a sensor-feedback means for sensing a potential at active electrode 116 **during each first pulse segment** (see column 14, lines 39-42), and it is not coupled to an indifferent electrode 118. Furthermore, there is a discharge circuit 128 between the electrodes 116 and 118, but it is provided for discharging or depolarizing an unwanted potential which can develop during each therapeutic pulse across the electrodes 116 and 118 and skin load SL disposed therebetween (see column 16, line 50-55).

In contrast, the present invention includes "a detection circuit for detecting reactive current flowing through a capacity component of impedance of the transdermal or the transmucosal tissues based on current outputted from the negative output terminal; and/or (b) a detection circuit for detecting residual voltage developed by the charge remaining in a capacity component of impedance of the transdermal or the transmucosal tissue based on a voltage existing between the output terminals **during an off-period of an output**", as shown in Appendices 1 and 2 attached hereto. As discussed with the Examiners during the interview, the structure of the first pulse segment generator means 20 and second pulse segment generator means 22 are illustrated in the McNichols, et al. reference only in Figure 1, and shows same only in box diagram style.

Thus, it is believed that, in view of the lack of detailed disclosure thereof, and failure of the McNichols, et al. specification to state that the first pulse segment generator means 20 and second pulse generator means 22 (column 10, lines 25-31) can function in the same way as the claimed first

circuit herein, said elements CANNOT be deemed to be equivalent to the first circuit claimed herein in either STRUCTURE OR FUNCTION. Thus, contrary to the Examiner's assertion, it is believed that the McNichols, et al. reference fails to disclose the first circuit as now claimed herein.

With regards to the sensor-feedback circuit 122 of the McNichols, et al. device, said sensor-feedback means comprises a feedback compare circuit 122b, which compares a first potential presented at the non-inverting terminal of comparator 140, which first potential comprises the threshold potential coupled along line 138 (as shown in Appendix 3 attached hereto), with a second potential presented at the inverting terminal of comparator 140, which second potential corresponds to a potential sensed at the active electrode 116 during each first pulse segment (see column 14, lines 28-52, and Appendix 3 attached hereto). This potential sensed at the electrode 116 does NOT correspond to the residual voltage or the reactive current, as detected in the present invention, as it is sensed "during each first pulse segment", NOT "during an off-period of an output", as claimed herein.

The sensor-feedback means of the McNichols, et al. reference CANNOT detect a reactive current or a residual voltage because a potential sensed at the active electrode 116 during each first pulse segment is only compared with the threshold potential coupled along line 138 (as shown in Appendix 3 attached hereto) at comparator 140 and the output of comparator 140 is led to the gate of MOSFET T1 (also as shown in Appendix 3 attached hereto). As a result, according to the description in column 15, lines 5-11, "MOSFET T1 will thus continue to gate the supply voltage to voltage gate circuit 124 during the initial portion of each therapeutic pulse until the output from comparator 140 assumes a low output state causing MOSFET T1 to become biased off, which event will occur when

the potential at the active electrode 116 exceeds the threshold potential".

Thus, as discussed in detail with the Examiners during the interview, it is believed that the McNichols, et al. reference discloses neither the device claimed herein, nor the method of detecting residual voltage developed by the charge remaining in a capacity component of impedance of the transdermal or the transmucosal tissue based on a voltage existing between the output terminals **during an off-period of an output**, as claimed herein. Rather, this device and method are believed to be taught only by the present invention, and constitute important elements or aspects thereof. Withdrawal of the rejection is accordingly respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance, and early action and allowance thereof is accordingly respectfully requested. In the event there is any reason why the application cannot be allowed at the present time, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems.

Respectfully submitted

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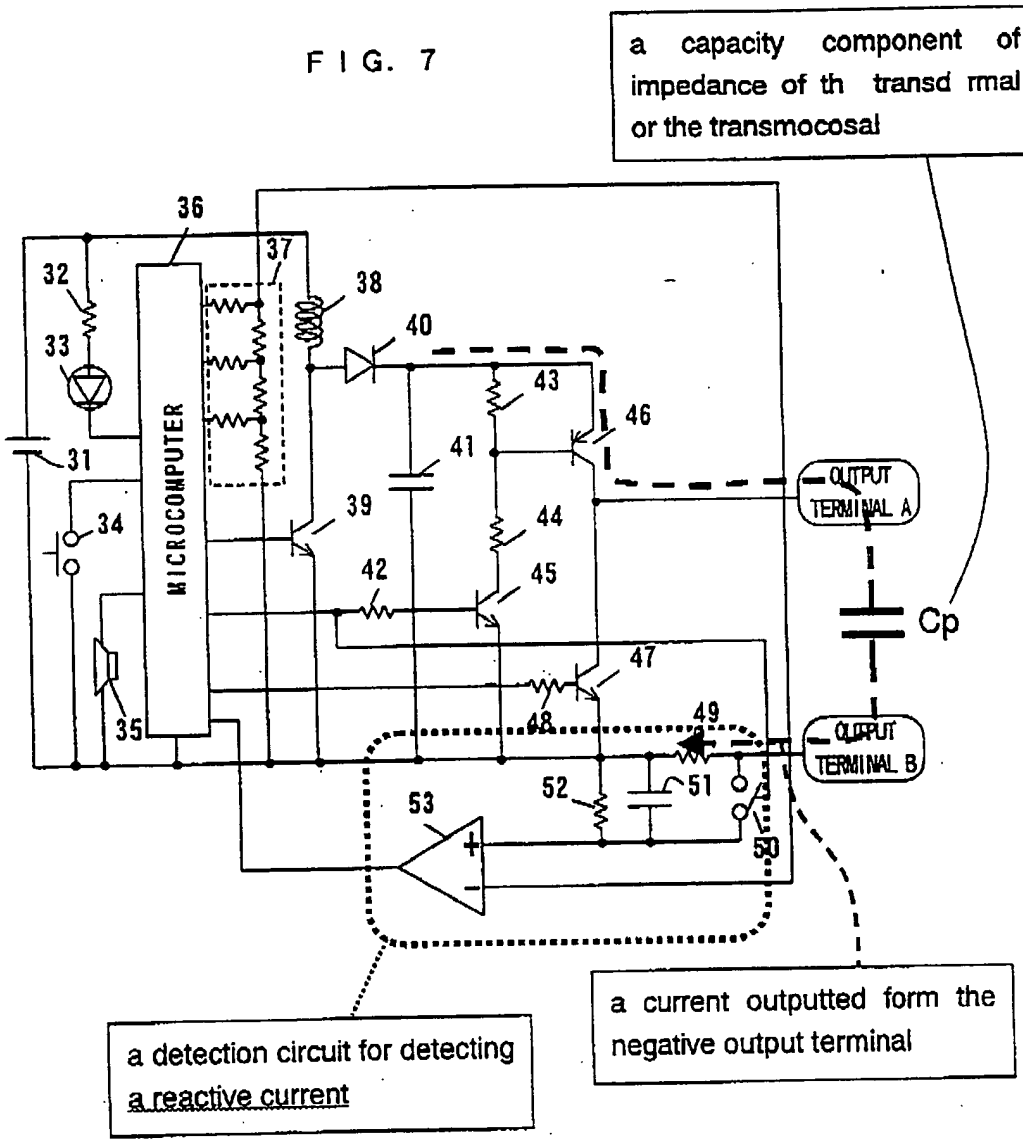
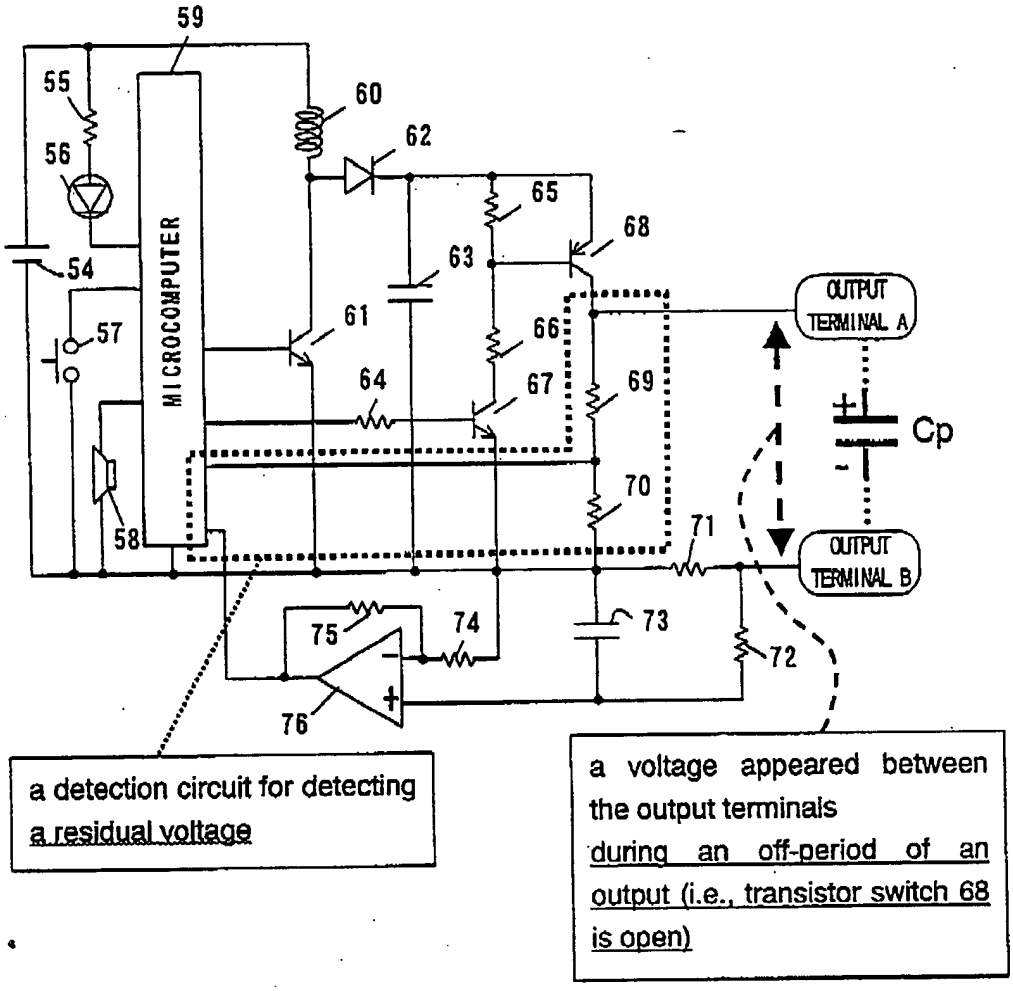
APPENDIX-1

FIG. 7



APPENDIX-2

FIG. 8



APPENDIX-3
(McNichols, et al. reference)

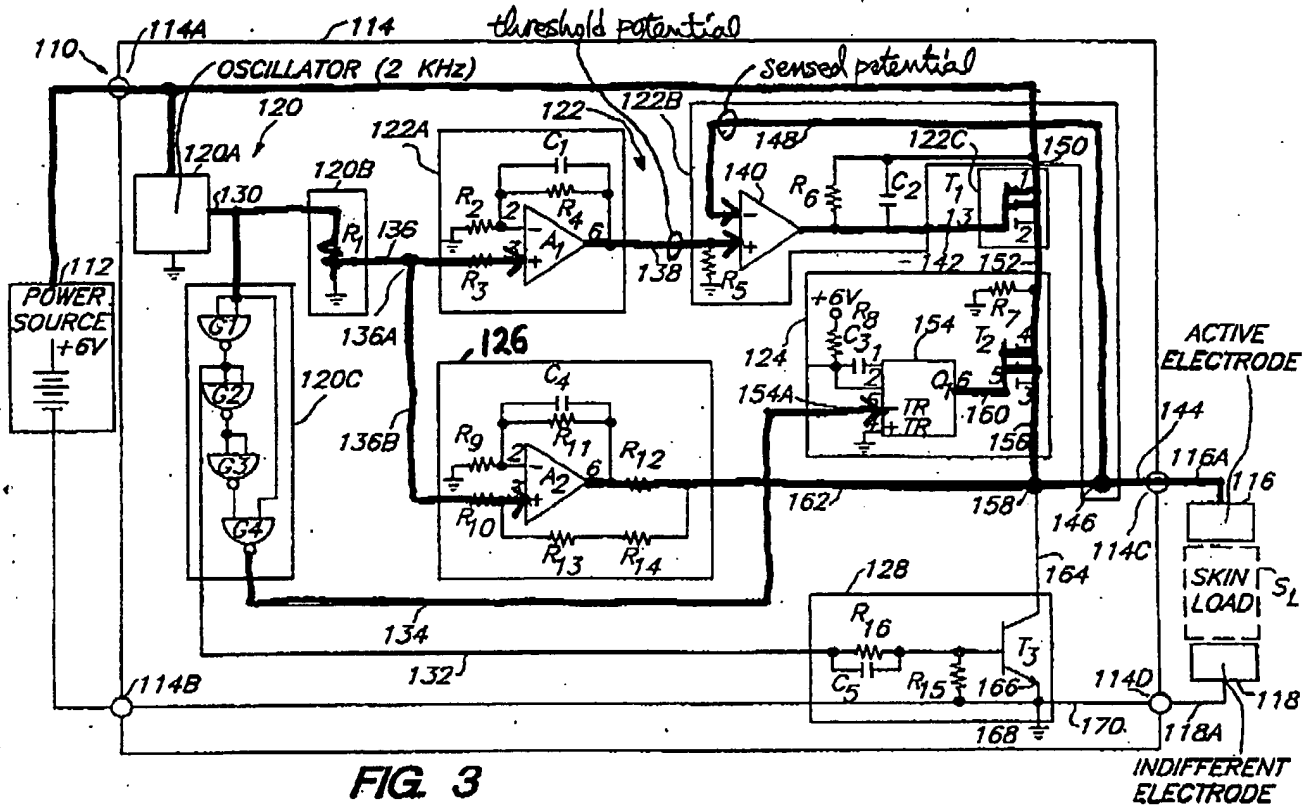


FIG. 3

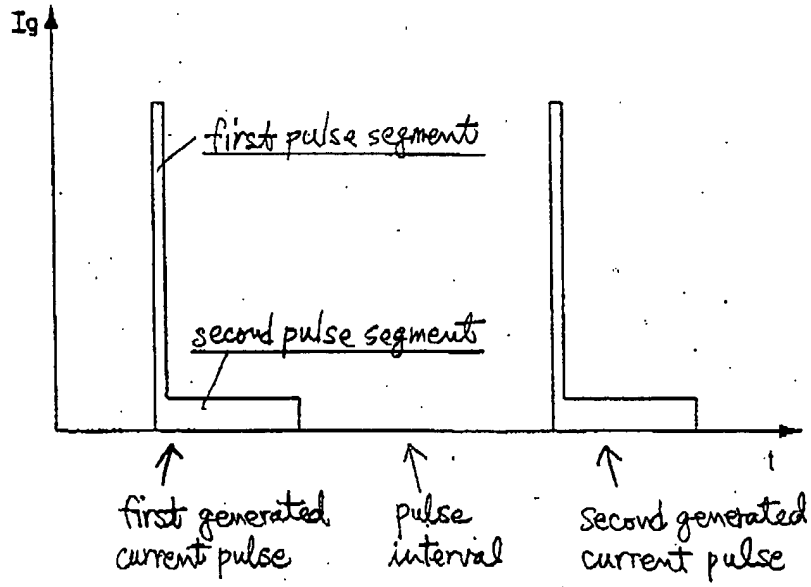


FIG. 4